7.0 MONITORING

CALFED will measure progress towards meeting prescriptions for NCCP communities and MSCS evaluated species primarily by monitoring the distribution and abundance of habitat types over time, through the CMARP. The CMARP enables CALFED to monitor its actions and adjust them in response to the results of the monitoring. The CMARP will monitor habitat type and distribution in the first stage of CALFED implementation by using a GIS and capturing remotely sensed data periodically. Additional monitoring efforts will be required for most species. The requirements for monitoring in support of the MSCS will significantly affect the scope and substance of the CMARP.

CMARP habitat monitoring will most likely provide sufficient information for CALFED to assess the status of many species, particularly species designated "m". However, specific species monitoring requirements will be determined in part by the degree of effect that CALFED actions are expected to have on the species. Any monitoring activities requiring take of federally listed species will be conducted either by individuals in possession of approved recovery permits pursuant to Section 10(a)(1)(A) of FESA, or by individuals authorized to conduct such activities through applicable biological opinions pursuant to Section 7 of FESA.

7.1 PURPOSE OF MONITORING

Monitoring serves not only to ensure compliance and gauge the effectiveness of CALFED actions, but also makes CALFED's choices under the adaptive management process more apparent, helps CALFED to redefine biological goals, and assesses the status of species and habitat conditions. As mentioned previously, CALFED's monitoring needs are being developed using the CMARP. Specific monitoring needs for the MSCS are included here as conservation measures; most measures will be identified and developed as part of the CMARP.

To ensure proper implementation of the MSCS, CALFED must monitor its success in attaining its NCCP community and evaluated species prescriptions. CALFED also must monitor its compliance with MSCS measures that are required for FESA and CESA compliance and specified in any subsequent Section 7 consultation, Section 10(a)(1)(B) permit, or NCCPA and/or Section 2081 authorization.

7.2 COMPLIANCE MONITORING

Monitoring to determine compliance with FESA, CESA, and NCCPA requirements will become part of CALFED's overall environmental compliance strategy. This strategy has been developed to ensure that CALFED actions meet the requirements of various statutes such as NEPA,

CEQA, CWA Sections 401 and 404, FESA, CESA, and NCCPA. CALFED will be required to document compliance with FESA, CESA, and NCCPA to receive permits for its actions. CALFED will use the information it derives from monitoring the success or failure of these actions to determine the actions it will carry out in its next stage.

7.3 EFFECTIVENESS MONITORING

One of the CMARP's functions will be to monitor CALFED actions to determine how successful CALFED is in attaining its prescriptions for NCCP communities and evaluated species. This monitoring program will provide information that CALFED can use to:

- evaluate progress toward restoring the spatial extent and connectivity of habitats and
- assess the ability of existing and restored habitat to support viable populations of all species native to the ecosystem, especially the species covered by the MSCS.

The CMARP will compile data on the changes in the distribution of habitats and of species within those habitats. Data on species occurrence and habitat characteristics will be linked so that CALFED can consider the species' habitat quality and the habitat attributes affected by management or restoration actions. CALFED will also monitor population dynamics and the behavior of particular species and species groups to detect how species respond to contrasting habitat conditions or particular management actions. Specific monitoring needs developed through the MSCS (such as the status of a particular species with respect to an established goal) are included in this document as conservation measures. This information will be incorporated into specific CMARP biological monitoring plans as they are developed.

CALFED will most likely measure progress toward its prescriptions for MSCS evaluated species primarily by monitoring the distribution and abundance of habitat types over time. The CMARP will monitor habitat type and distribution in the first stage of CALFED implementation by using a GIS and capturing remotely sensed data periodically.

The manner in which CALFED will monitor for NCCP communities and evaluated species is related to the species conservation goals. For most species designated "R", particularly fish, some monitoring is ongoing; the CMARP addresses the MSCS goals for these species, at least in part. Additional conservation measures for monitoring these species' abundance and distribution to be developed include real-time monitoring for species to determine their location in the Delta, microhabitat utilization, and other studies. However, many species are not being regularly monitored on an ongoing basis. Specific monitoring activities are being developed for these species in coordination with USFWS, NMFS, and DFG.

Relatively little monitoring is underway for species designated "r", which include mammals, birds, fish, reptiles, insects, and plants. The MSCS includes monitoring measures that focus on these species.

To monitor most species designated "m", CALFED will most likely track the distribution and abundance of habitats or ecosystem indicators over time. CALFED will address adverse effects of its actions on the species commensurate with the level of effect on the species. Therefore, the monitoring and research requirements for these species generally will relate to the potential CALFED effects on the species. For example, if a plant species is located at a proposed reservoir site, CALFED might assess the species' status over time to determine whether it can conserve the species while allowing reservoir construction to proceed.

Much of the monitoring and research required for the MSCS is expected to be implemented through facets of the CMARP that address monitoring and research requirements for the ERP and other CALFED programs. However, CALFED must ensure that a significant component of the CMARP addresses certain elements of the MSCS. In particular, conservation requirements for several species designated "R" and all species designated "r", as well as the need to monitor habitat conditions for all species designated "m", will be significant additions to CALFED as a whole. When the MSCS is finalized, the CMARP will detail the monitoring and research needs for these species.

7.4 INTEGRATION

CALFED will use the information it gathers through monitoring in an adaptive management process to determine the actions it will implement in subsequent stages.